

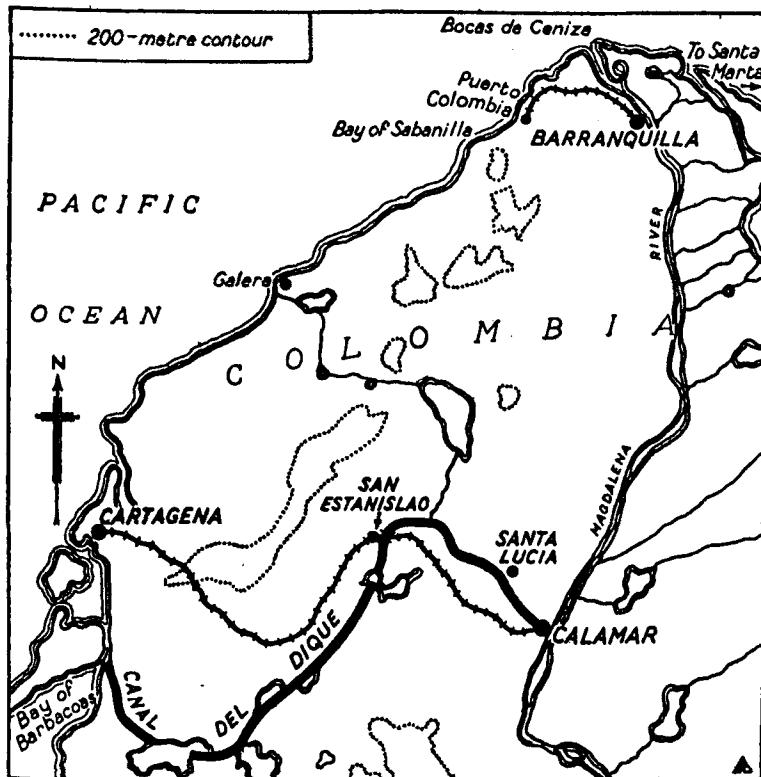
CARTAGENA AND THE DIQUE: A PROBLEM IN TRANSPORTATION

by Theodore E. Nichols

THE principal Caribbean ports of the Republic of Colombia are Barranquilla, Cartagena, and Santa Marta. Each in its turn has been Colombia's chief port, the main determining factor being not just a good bay, but communications with the interior. Historically all three have been dependent on the Magdalena River, which even in the Air Age is still the main artery to or at least towards the urban centre of the interior. The oldest city, Santa Marta, has a fairly good harbour, but from there only small boats can move through an area of *ciénagas* or swampy lakes and channels to the Magdalena. Barranquilla, whose growth is comparatively recent,¹ has the advantage of being on the river some twelve miles south of its mouth, but through much of human history the Bocas de Ceniza, as the mouth is called, has been blocked for all but small boats by a sandbar. Cartagena possesses an enclosed bay which is both beautiful and commercially valuable, although channels have had to be dredged for ships as large as the Grace Line's *Santas*. But Cartagena's communications with the Magdalena have never been adequate. Both before and since the building of the Cartagena-Calamar railroad this city has tried to make use of a water channel to the river, the Dique Canal.

What is now the Dique Canal was one of the prehistoric channels of the river. Several others besides the present channel and its Bocas de Ceniza can be distinguished on a topographical map. To the west of the present river lies the Luruaco Pass or Gap, a series of *ciénagas* occupying an abandoned stream valley, which runs from the river at a point below Calamar to the Dique Canal near San Estanislao, and then follows a winding northward course to the sea at the Ensenada de Galera Zamba, about half-way between Puerto Colombia and Cartagena. Another probable channel was the Caño de la Piña, which as late as the nineteenth century was a narrow stream running from a point below Barranquilla into the Bay of Sabanilla. Another, called the Río Viejo, is east of the present channel, and still carries a large amount of water to the sea. Still farther to the east lies the swampy hinterland of Santa Marta through which the river undoubtedly once ran.

Of these prehistoric channels, that known as the Dique Canal has continued to have the greatest historical importance. Shallow and stagnant in dry seasons, in rainy times it disgorges a fair amount of water into the Bay of Barbacoas or Matunilla just to the south of Cartagena. Never a really good canal, despite man's efforts at improvements, the Dique has attracted travellers and merchants throughout Colombian history.



Sketch map showing Canal del Dique

THE COLONIAL PERIOD

Cartagena in the late sixteenth century was not yet the city of famous fortresses and walls, but her fortifications were growing because she was the chief entrepôt for the gold and lesser trade items going from northern South America to Spain, and she had already been attacked by Drake and other corsairs. Cartagena's chief problem, however, was access to the Magdalena River. South of the town lay the mouth of a narrow and winding distributary of that river, and before the century was over the idea of making it navigable had occurred to the Spaniards.

The first project, carried out by Mateo Rodríguez with rights granted by the governor and captain-general of Cartagena, was completed after many legal complications in 1582. Rodríguez's project involved a road covering the first three miles from the river; from that point to Cartagena the trip could be made by canoe.³ By 1650 a complete water route was open, and during the next few years it was alternately managed by the city and by private lessees. A tortuously winding affair of some twenty-nine Spanish leagues (though a straight line from Cartagena eastward to the river would have been about twelve), this canal was nevertheless superior to either the dangerous

sea-Bocas de Ceniza route or that by land, and merchants were delighted with it.³

By 1680 the canal had become completely unnavigable, and throughout the eighteenth century it had an off-and-on existence. One problem seemed to be that the Magdalena entrance to the canal was at right angles to the river. Therefore the main river current could not be diverted to help scour the canal deeper; instead, it merely deposited silt and debris in the canal mouth. Parts of the canal were situated above the average river level; outlets to swamps and lakes drained off water; curves slowed the current, vegetation choked the channel, and fallen trees blocked it.⁴ In 1789 the Archbishop-Viceroy of this Viceroyalty of New Granada, Antonio Caballero y Góngora, wrote to his successor that the Dique, although the chief highway for goods from the interior, was full of obstacles and was navigable during less than half of the year.⁵ Viceroy José de Ezpeleta, in his *relación* to his successor in 1796, wrote that during the greater part of the year much of the canal was impassable, and that "the orders to attend to making it navigable throughout the year are oft repeated, but have never been carried out".⁶ When Viceroy Antonio Amar y Borbón passed through the canal in 1810 a channel in one section had to be made "by brute force".⁷ In the holocaust of the Wars of Independence in the second decade of the nineteenth century the Dique became even more obstructed and virtually unused.

THE NINETEENTH CENTURY

The early period of Colombian independence coincides with the "Canal Age" in the United States. The Erie Canal, begun in 1817 and completed in 1825, proved such a success in trade and communications that during the next quarter-century over three thousand miles of canals were excavated. Perhaps it is more than coincidental, therefore, that interest in the Dique Canal, virtually dead since the early days of the century, was renewed at this time. The example of the significance of canals in the northern republic, as well as earlier in Europe, undoubtedly influenced this renewal, as of course did the development of excavating machinery. The rapid growth of activity of the port of New York, due to so great an extent to the Erie Canal, was a phenomenon which Cartagena merchants later in the century may have noted and compared to the potential value of the Dique to their city.

In the 1820s most travellers had to use the land route; indeed, one English visitor found the eastern mouth of the canal used merely as a "horsepond"; one hundred and fifty yards from the river the Dique was dry, and further on "it was a green and turbid pool, the stench of which affected the senses at half a mile distance".⁸ There seemed little doubt in the minds of many, however, that the prosperity and commercial importance of Cartagena would soar if the Dique were made an efficient, all-year route.⁹ Not only Cartagena but all of the interior would profit. A man with initiative was needed.

Such a man apparently was the German known in Colombia as Juan Bernardo Elbers, who in 1823 was granted a twenty-year monopoly of steam navigation on the

Magdalena River and the rights to clear and make use of the Dique.¹⁰ Elbers's plans came to no more than introducing the first rather unsuccessful steamboats on the river, however. Years of governmental opposition and red-tape, litigation, and frustrating disappointments eventually eliminated Elbers from the scene and left the Dique unimproved.¹¹ Years of jurisdictional disputes over the canal between city, province, and national government also prevented further action.

It was not until 1844 that a new man with new ideas appeared. This was George M. Totten, later builder of the Panama Railroad and an able civil engineer. The Province of Cartagena hired him to make an inspection of the canal and later contracted with him to make it navigable. Totten's investigations showed that the section of the canal running north-west from the river had always been the most troublesome. Throughout most years the part from Cartagena at least as far as Mahates was navigable, but in the dry seasons the eastern section became too shallow. Totten's main contribution was some fifteen kilometres of new channel from the Ciénaga de Sanaguare to the river, with a lock at either end, a work probably completed late in 1847 or early in 1848.¹²

The completion of the "Totten Cut" did not guarantee the opening of the canal, and financial difficulties and flood damage delayed it until 1850. On 15 June of that year the provincial *junta* in charge of the Dique started the small steamboat *Calamar* from Cartagena; it navigated the canal successfully and reached Mompós on 24 June.¹³ A Cartagena newspaper proclaimed, "The canal offers an easy and quick way to carry the industrial products of the interior to our market."¹⁴ This statement had more significance than it would have had a few years earlier, for by the late 1840s Colombia¹⁵ had developed its first important export crop, tobacco. This product was produced in increasing amounts,¹⁶ and the rival ports vied for its trade.

Allied with the problems of trade and the Dique was steam navigation on the Magdalena. In 1847 a company was formed at Cartagena (*la Compañía de Cartagena para la Navegación por Vapor del Magdalena y Dique*) to compete with one established the previous year in the rival port of Santa Marta (*Compañía de Vapores de Santa Marta*).¹⁷ The Santa Marta boats had to rely on the Bocas de Ceniza or Río Viejo to reach the Magdalena, since the swampy channels between Santa Marta and the river would seldom permit boats of any size to pass. The Cartagena Company necessarily depended on the Dique, and Totten, as one of the company's five directors, was doubly anxious to keep the canal open.

Totten's efforts failed. The canal required constant upkeep, and sufficient funds were not available. A serious blow was the abolition of the government monopoly of tobacco and all duties thereon, for part of Totten's funds and payments were to have been in bonds of the Province of Cartagena which were guaranteed by provincial duties on tobacco. Totten claimed that he lost a revenue of 28,000 pesos annually when laws of 1848-9 abolished the monopoly and allowed the free production of that commodity. He also wrote that powerful Santa Marta interests were responsible for block-

ing him.¹⁸ In any event, by 1852 the Dique was again in bad condition, the gate at the river end being destroyed by a flash flood. With the canal again unnavigable the Cartagena steamboat company languished and expired, and the trade of Cartagena declined seriously.¹⁹ It was in this decade that Barranquilla really began its great rise. As for Totten, he tried for years to collect claims, but in the meantime moved on to a more profitable venture, the Panama Railroad.

Inspections of the Dique were made in 1852 by two other foreign engineers, John May, a North American, and Lionel Gisbourne, an Englishman. May's report was extremely pessimistic. Finding the locks badly damaged, and recognizing the basic problem of the dry seasons and the river's heavy deposition of silt and debris, May recommended the abandonment of the canal and the building of a corduroy road.²⁰ Gisbourne, on the other hand, stated that an expenditure of £150,000 would reopen the canal for steamers and would bring all the Sabanilla-Barranquilla²¹ and Santa Marta trade to Cartagena.²²

Whether wisely or not, the more optimistic view of Gisbourne rather than that of May was followed. The Dique seemed essential to the commercial life of Cartagena; if she were to compete with her rival ports for the tobacco market, she must have adequate connections with the Magdalena.²³ Consequently, towards the end of 1854, proposals for opening the canal were again solicited in alluring terms.²⁴ The half-decade after 1855 actually saw the birth and death of four Dique enterprises. The first of these, the New Granada Canal and Steam Navigation Company of New York, published a glowing brochure which promised that a little channelling in the eastern section and the elimination of Totten's locks would make the canal soon pay for itself and also bring a handsome profit to the stockholders.²⁵ Nothing beyond a little temporary dredging ever came of these plans; the concession was cancelled and the canal reverted to the province.²⁶

In the later 1850s and 1860s two Colombian and one Colombian-North American group in turn received the canal concession; all three failed, the first at least partly because the period was one of civil unrest during which some of the ports were closed.²⁷ In the early 1870s another company was formed from Cartagena and British interests, but to no avail.²⁸

The canal was made navigable as the result of work performed in the late 1870s. Begun by Colombians, the project was completed under the direction of another North American engineer. The state of Bolívar,²⁹ which now had the canal under its jurisdiction, allotted funds as did the national government, and in 1877 contracted to open the section between Pasacaballos and the Ciénaga de Pájaro (roughly the western one-third of the Dique). The work progressed well, and after James J. Moore took over in 1878, bringing in much equipment from the United States, the project was rapidly completed. Not only the western section, but some of the old Totten canal was improved, and by the fall of 1879 it was reported that the Dique was navigable for all

river boats drawing up to five feet. During the following year the passage of a newly-constructed steamer was reported.³⁰

So long as regular or periodic dredging was continued the Dique remained navigable. Two dredges plied the channel in the early 1880s, and it was obviously more than coincidental that at the same time the volume of Cartagena's trade increased considerably. The tobacco boom had died by now, and was briefly replaced by cinchona bark as the chief export; by the time the latter market had declined, coffee had taken over, not to yield its export supremacy to the present day.³¹ Barranquilla's trade was greater, but both Cartagena's exports and imports were soaring. In 1888 the United States Consul at Cartagena wrote that in the past decade exports through Cartagena had increased 300 per cent.³² Equally striking were Cartagena's import figures, which, according to one authority, increased in value approximately 300 per cent between 1878-9 and 1887.³³ The belief was expressed that Cartagena might again come to rival the younger city, although Barranquilla was by now recognized as Colombia's leading port.³⁴

During the years 1888-93 the number of passengers and amount of freight using the Dique increased greatly.³⁵ Nevertheless there are signs that by this time the canal was again becoming unsatisfactory. The national government made a new appropriation of 100,000 pesos to open what it hoped would be a permanent channel. A Dutch engineer presented an elaborate plan which included three locks.³⁶ Nothing actually was done, however, and mishaps began to occur. Boats encountered shallow and even dry sections, and had disastrous collisions with tree trunks, with the result that several were wrecked. By 1890 the effect was being seen in the volume of trade through Cartagena.³⁷ Officialdom was not completely inert to this situation, for Robert C. Wood had contracted in 1889 to open the Dique. By March of 1891 his men had excavated 7,500 cubic metres of material. But in October it was discovered that the machinery had been abandoned and that Wood was back in the United States. His contract was cancelled in consequence.³⁸

It is not surprising that by this time other means of reaching the Magdalena were being considered. The example of the seventeen-mile railroad connecting Barranquilla to the Bay of Sabanilla, one of the prime factors in the rise of that port, did not go unnoticed in Cartagena and Bogotá, and while the Minister of Fomento specifically suggested a railroad between Cartagena and the river in 1889, a contract for such a line had actually been signed as early as 1865.³⁹ The railroad was built, however, as the result of contracts of the 1890s. Three companies were formed in Boston in that decade: the Cartagena Terminal Improvement Company and the Cartagena-Magdalena Railroad Company, formed in 1891, and the Compañía Fluvial de Cartagena, organized in 1897. This three-headed commercial enterprise was to build the railroad from Cartagena to Calamar, construct a railroad pier on the Bay of Cartagena—and maintain steam navigation on the Dique and Magdalena!⁴⁰ Thus the Dique was not forgotten despite the sad experiences of the past and the chance of a superior means of transportation in the

future. Samuel McConnico, who initiated the companies, received the backing in 1891 of President Rafael Núñez, who happened to be a native of Cartagena. The president, according to one writer, used funds from the national treasury to foster transportation improvements as a means of increasing the importance of the city of his birth at the expense of the upstart Barranquilla.⁴¹

The railroad and pier were quickly completed and at least some traffic was going through the canal,⁴² when in 1899 the "War of the Thousand Days", Colombia's most severe civil war, broke out. In the course of this struggle the North American companies, according to claims made later, were grievously used by the government, and Cartagena and Calamar were commercially discriminated against in favour of Barranquilla and Sabanilla.⁴³ As a result the companies were ruined, and Cartagena's commerce suffered more from the war than did that of Barranquilla.⁴⁴

By the turn of the century it was obvious to all that Cartagena, despite her fine bay, illustrious and romantic history, and scenic beauty, had been surpassed by Barranquilla. Even by the mid-1890s the value of Barranquilla's annual trade and her customs revenues were two to three times those of Cartagena.⁴⁵ Barranquilla's population had grown from 11,212 in 1834 to 40,115 in 1905, whereas Cartagena's had decreased from 22,171 in the former year to 14,000 in the latter.⁴⁶ Barranquilla, too, had her communications problems; had the Dique really functioned continuously, the dawn of the new century might have seen Cartagena and not Barranquilla as the "Queen of the Coast".

THE DIQUE IN THE PRESENT CENTURY

In the early part of the present century the Cartagena Railroad continued to operate while the Dique languished. The latter had not been forgotten, however, and there was frequent talk of dredging it. For one thing, the railroad rates were high, and, secondly, the old canal had required no transfer of cargoes from boat to train. Consequently both national and departmental government funds were again allotted, surveys made, and *juntas* formed, and finally in 1922 the Foundation Company of New York contracted to clear the canal.⁴⁷ After a confused period of legal complications this firm began work at Calamar in October of 1923. The canal was given a width of thirty-four metres at water level and a depth of 2·4 metres. Curves were given a minimum radius of 191 metres for the benefit of larger boats.⁴⁸

At the end of two years, when the contract had expired, the government obliged with a renewal and additional funds. In 1927 a third contract was signed. By April 1930 the job was not yet done, and total costs had now mounted to over two and a quarter million pesos. The world economic crisis was now being felt in Colombia, the country was in serious financial condition, and there was much criticism of the long and expensive project. The outcome was that the company was ordered to suspend work and hand its equipment over to the government, and in 1931 financial arrangements were settled and the contract was liquidated.⁴⁹

The national government itself attempted for a time to carry on the project. Aside from the necessity of maintaining the completed section by constant dredging, there remained to be excavated only a channel which would enable boats to avoid the open Bay of Barbacoas.⁵⁰ However, it was not long before the government found it advisable to contract with another foreign company for this work. Early in 1932 the Minister of Public Works contracted with the Frederick Snare Corporation of New York, a large engineering and construction firm with world-wide experience and reputation. The major part of the job for which the Snare Corporation contracted was the modernization of the port of Cartagena, a subject too large to discuss here. The contract also called for the completion of the Dique, which involved chiefly the excavation of the "cut of Barbacoas", a channel connecting the Bay of Cartagena directly with the Dique and eliminating the use of the Bay of Barbacoas.⁵¹

Snare Corporation's Dique project was completed in 1935. It had excavated 1,500,000 cubic yards of material, and not only made the Barbacoas cut but accomplished considerable widening and straightening elsewhere, providing a channel eleven and a half feet deep throughout. The government was to maintain this channel by yearly dredging.⁵²

With the canal opened and new port works at Cartagena inaugurated, it may be more than coincidence that Cartagena's trade increased in 1935 by more than one-third over 1934 while that of Barranquilla declined considerably.⁵³ The fact that Cartagena had become Colombia's chief petroleum port cannot of course be correlated with the Dique, since the oil flowed from the fields through a pipe-line. But the great importance of transportation connections with the interior continued to be an all-important factor, as exemplified by the forward surge of Barranquilla's trade following the completion of the Bocas de Ceniza project later in the 1930s.

By the 1940s the Dique's condition was again unsatisfactory. It was reported to be practically dry during the first three months of 1948, although later in the year it handled a sizeable amount of commerce.⁵⁴ A consular report in 1950 stated, "This water-way is transitable at present, but its condition leaves much to be desired."⁵⁵ The canal continued to be used, as indicated by the following figures of traffic through the Dique:⁵⁶

Year	From Cartagena	To Cartagena	Total
1946	28,837	19,904	44,741
1947	16,781	39,139	55,920
1948	16,232	20,651	36,883
1949	13,308	10,625	23,993
1950	17,080	44,868	61,948
1951	28,359	99,798	128,157

(figures in metric tons)

The most recent Dique project has been that of the Standard Dredging Company, Incorporated, of New York. It was completed after seventeen months of work in August 1952, at a cost of over two million dollars. The contract dimensions of the dredged canal were 45 metres width at the bottom and a depth of 2·4 metres. The canal was shortened from 117 kilometres to 114·5, with many curves eliminated and others widened.⁵⁷

The project seemed to have been fairly successful, although several boats were stuck during the month of March 1953 because of a lengthy dry season.⁵⁸ With no good highway as yet completed between Cartagena and Calamar, and with the Cartagena Railroad running at a loss or not at all,⁵⁹ the canal seemed more important than ever.

Thus, decade after decade, do Cartagena and Colombia return with a kind of desperate optimism to their Dique. Throughout centuries of history it has been intermittently passable but never really satisfactory; yet almost countless projects to make it "permanent" have been attempted. The Currie Report of 1950 noted the Dique's discouraging career and the fact that the Magdalena's sediment has foiled every effort, yet recommended that the canal be improved.⁶⁰

Will the canal ever justify itself and attain its potential usefulness? Its problem is a part of that of the Magdalena River, which continues to be Colombia's main commercial highway despite the frustrations of sand bars and vegetation which drive the shipper frantic in the dry seasons.

The Currie Report suggests that a great highway programme may be the solution for the broader Colombian transportation problem. Plans for new trunk highways and the new project for a railroad paralleling a long section of the Magdalena may help. Highways and railroads may be the answer—not tiny sections connecting the coastal and the interior cities with the river, but through routes, by-passing and ignoring the ancient waterways.

NOTES

1. See the author's article "The Rise of Barranquilla", in *The Hispanic American Review*, xxxiv (1954), 158–74.

2. A number of articles by Colombian writers tell of this first project and of the colonial history of the Dique in general. See A. Ibot León, "El Canal del Dique de Cartagena de Indias", *América Española*, v (1936), 5–25, 100–18, 167–83; G. Porras Troconis, "El Canal del Dique", *Boletín de historia y antiguiedades*, xxii (1935), 612–22; Mauricio N. Visbal, "Apuntes históricos sobre el Canal del Dique", *Boletín historial* (Cartagena), No. 86 (May 1845), pp. 3–17; Antonio del Real, *Dique de Cartagena* (Cartagena and Bogotá, 1871–2), which is most conveniently located as pp. 517–53 of Eduardo de Gutiérrez de Piñeres, comp., *Documentos para la historia del Departamento de Bolívar* (2nd ed., Cartagena, 1924). A Spanish article also gives much incidental information (Julia Herráez S. de Escariche, "Don Pedro Zapata de Mendoza, gobernador de Cartagena de Indias", *Anuario de estudios americanos* (Seville), iii (1946), 379–515).

3. Ibot León, "El Canal del Dique de Cartagena de Indias", in *loc. cit.*, pp. 24–5 and 100–1, 103–4, 107. The exact length of a seventeenth-century Spanish league is difficult to ascertain. The Espasa

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Calpe dictionary gives it as 20,000 feet, which would make 29 leagues equal to about 110 miles, a somewhat excessive figure in light of the present canal length of 114·5 kilometres. Whether 300 years of excavating projects on the canal could have reduced its length to such an extent is hard to say; many curves were eliminated, but the fact remains that the Dique still occupies to a large degree the ancient stream bed.

4. *ibid.*, pp. 102, 111-13; Visbal, "Apuntes históricos sobre el Canal del Dique", in *loc. cit.*, p. 7.

5. Eduardo Posada y Ibáñez and P. M. Ibáñez, comps., *Relaciones de mando. Memorias presentadas por los gobernantes del Nuevo Reino de Granada* (Bogotá, 1910), pp. 742-3.

6. *ibid.*, pp. 155-6.

7. Report of John May to Governor Juan José Nieto, 8 Sept. 1852, in *Gaceta Oficial*, 16 Dec. 1852.

8. William Duane, *A Visit to Colombia, in the Years 1822 and 1823* (Philadelphia, 1826), pp. 612, 617. See also the descriptions by Charles Stuart Cochrane, *Journal of a Residence and Travels in Colombia during the Years 1823 and 1824* (London, 1825), II, 477-8; John Potter Hamilton, *Travels through the Interior Provinces of Columbia* (London, 1827), I, 550; and G[aspard Theodore, comte de] Mollien, *Travels in the Republic of Colombia, in the Years 1822 and 1823*, trans. by C. Knight (London, 1824), pp. 17, 19.

9. See Cochrane, *op. cit.*, II, 477; [Colonel Francis Hall], *Letters Written from Colombia, During a Journey from Caracas to Bogotá, and Thence to Santa Martha, in 1823* (London, 1824), p. 204. The British consul at Cartagena believed that the obstructing of the canal was the main reason for Santa Marta's having attained a greater volume of trade than Cartagena: Edward Watts to George Canning, Cartagena, 9 May 1824, in Robin Arthur Humphreys, ed., *British Consular Reports on the Trade and Politics of Latin America, 1824-1826* (London, 1940), p. 260.

10. *Cuerpo de leyes de la República de Colombia* (vols. I-III, London, 1825), II, 27-31, 153-5.

11. See Robert Louis Gilmore and John Parker Harrison, "Juan Bernardo Elbers and the Introduction of Steam Navigation on the Magdalena River", *The Hispanic American Historical Review*, XXVIII (1948), 335-59.

12. Consul Ramón L. Sánchez to Secretary of State James Buchanan, 30 Apr. 1847, in U.S. Department of State, Consular Despatches-Cartagena, vol. IV, in National Archives, Washington, D.C. Totten's contract, of 1 Mar. 1844, may be found in Records of Boundary and Claims Commissions and Arbitrations, Record Group 76, Colombian Claims, 1857, 1864, No. 51, G. M. Totten, in National Archives, Washington, D.C. Hercinafter cited as Totten Claims.

13. Sánchez to Secretary of State John M. Clayton, Cartagena, 18 June 1850, Consular Despatches-Cartagena, vol. IV.

14. *La Democracia*, 22 Aug. 1850.

15. The name Colombia is used throughout this article, although the nation was entitled República de la Nueva Granada from 1832 to 1858, Confederación Granadina from 1858 to 1861, Estados Unidos de la Nueva Granada and Estados Unidos de Colombia in the 1861-85 era, and República de Colombia from 1819 to 1831 and again since 1886.

16. By 1856 the value of the tobacco exported amounted to \$3·5 million pesos, or half the total value of the nation's exports, and considerably more than the value of the precious metals shipped. In 1866-7 the value of the tobacco exported was 20 million pesos: Francisco Javier Vergara y Velasco, *Nueva geografía de Colombia escrita por regiones naturales* (Bogotá, 1901), pp. 72, 745. Of course one should not automatically deduce from these figures that almost six times as much tobacco was shipped in 1866-7 as in 1856; changes in prices would also have to be considered. Vergara y Velasco's graph shows that the weight of tobacco exported in the two years was 5·1 million kilograms and 6 million kilograms, respectively (*ibid.*, p. 745).

17. *Gaceta de la Nueva Granada*, 24 Jan., 29 Apr., 22 Aug. 1847; *Gaceta Oficial*, 2 Jan. 1848, 23 Feb., 30 Apr. 1851.

18. Totten to Thomas M. Foote, Cartagena, 29 Nov. 1849, 17 July 1850, in Totten Claims.

19. *Gaceta Oficial*, 11 Dec. 1852. The date of this company's demise has not been found. The sources say that the company was in dire straits by 1852, and cease to mention it thereafter.

20. May report, in *ibid.*, 16 Dec. 1852.

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21. Barranquilla, closed much of the time to large sea-going vessels because of the sandbar blocking the Bocas de Ceniza, had to rely for foreign trade on satellite ports such as Sabanilla, Salgar, and later Puerto Colombia on the nearby Bay of Sabanilla. There cargoes were loaded on to mules for Barranquilla or taken there by water when the narrow Caño de la Piña was open between that bay and the Magdalena. After 1870 a railroad connected Barranquilla with the bay.

22. Lionel Gisbourne, *The Isthmus of Darien in 1852: Journal of the Expedition of Inquiry for the Junction of the Atlantic and Pacific Oceans* (London, 1853), pp. 47-8, 58, 67.

23. A recent study which ably shows the relationships between tobacco, the commerce of Barranquilla and Cartagena, and the Dique Canal, is John Parker Harrison, "The Colombian Tobacco Industry from Government Monopoly to Free Trade: 1778-1876" (unpublished Ph.D. dissertation, University of California, 1951).

24. It was claimed that 15 million pesos in trade went through the canal yearly when it was navigable. Even 0·5 per cent tax would bring the concessionaires 75,000 pesos. Upkeep would not cost over 15,500 pesos (*Crónica Oficial de la Provincia de Cartagena*, 14 Dec. 1854).

25. See New Granada Canal and Steam Navigation Company of New York, *Remarks on the Canal or "Dique" of Cartagena, New Granada, and Its Navigation by Steam* (New York, 1855).

26. Sánchez to James Bowlin (U.S. Minister at Bogotá), Cartagena, 9 Jan., 20 Mar. 1856, in U.S. Consulate, Cartagena, New Granada, Letters Sent, Correspondence with Local Authorities, Other Consulates, etc., 24 Oct. 1855-4 June 1860 (unpublished MSS. in National Archives, Washington, D.C.).

27. More details are to be found in *El Tiempo* (Bogotá), 28 Apr., 28 July 1857; Del Real, *op. cit.*, p. 526; and Visbal, "Apuntes históricos sobre el Canal del Dique", in *loc. cit.*, pp. 11-12. Another work implies that there may have been two other short-lived Dique companies in this period: José Ramón Vergara and Fernando E. Baena, *Barranquilla su pasado y presente* (2nd ed., Barranquilla, 1946), pp. 95-6.

28. The involved vicissitudes of this Compañía de Vapores del Dique were written down and published by one of the founders; this is the work of Del Real previously referred to. See especially pp. 528, 530, 540-52.

29. The political sub-divisions of Colombia have changed as the country has varied from a federal to a centralized form of government. When the nation became the Granadine Confederation by the federal constitution of 1858, and the United States of Colombia by that of 1863, states were created, including that of Bolívar, its capital being the old provincial capital of Cartagena. The constitution of 1886 created the unitarian Republic of Colombia, and changed the states to departments.

30. *Diario Oficial*, 12 Apr. 1878; 3 Feb., 14 Apr. 1879; 23 Dec. 1880; United States Commercial Agent Edmund Smith to Second Assistant Secretary of State, 31 Oct. 1879, Consular Despatches-Cartagena, vol. viii; Visbal, "Apuntes históricos sobre el Canal del Dique", in *loc. cit.*, pp. 12-15.

31. Vergara y Velasco, *op. cit.*, p. 804; Harrison, *op. cit.*, pp. 267-83, 294-5.

32. Consul W. B. McMaster to Assistant Secretary of State George Rives, 5 Sept. 1888, Consular Despatches-Cartagena, vol. xi.

33. It is impossible to find exact agreement on Colombian trade statistics of this period. Vergara y Velasco gives figures indicating a decline in the peso value of trade through Barranquilla from 1879-80 to 1887 (*op. cit.*, pp. 811, 815), yet the *Diario Oficial* and consular reports giving customs returns indicate a rapid rise in that trade in the same period. The only certainty is that Cartagena's trade was increasing but that it was far below that of Barranquilla.

34. The commercial agent of the United States at Cartagena, Edmund Smith, wrote a 54-page report in 1880 which dealt mainly with the Dique. He pointed out the advantages of the harbour of Cartagena over that of Sabanilla, and claimed that shippers of the interior made a saving of 40 per cent by using the Dique route over any other. This fact would soon cause Cartagena to usurp Barranquilla's predominant position as the chief Caribbean port of Colombia (Smith to Second Assistant Secretary of State William Hunter, 31 Dec. 1880, Consular Despatches-Cartagena, vol. viii). The consul at Barranquilla ridiculed such claims. In 1883, writing in regard to the Atlas Steamship Company of Liverpool, which had received the Dique concession and seemed to be aiming at diverting Barranquilla's trade to Cartagena, this consul stated that "It is about as likely to be successful as would be an enter-

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prise to turn back the waters of the Magdalena into the mountains" (Thomas Dawson to Assistant Secretary of State John Davis, 16 Apr. 1883, Consular Despatches-Barranquilla, vol. i). The rivalry between the two cities was strong.

35. McMaster to Rives, 5 Sept. 1888, Consular Despatches-Cartagena, vol. xi. I have also compiled statistics, which I am not reproducing here, from 48 issues of the *Diario Oficial* between the dates 6 Jan. 1889 and 22 July 1893.

36. McMaster to Rives, 5 Sept. 1888, Consular Despatches-Cartagena, vol. xi; W. Brandsma Joh. Zn., *Proyecto para la canalización del Dique de Cartagena* (Kralingen, 1887). The latter was published as a bound and elaborately illustrated volume with the text printed in both Spanish and French.

37. *Diario Oficial*, 15 May 1888; 8 Jan. 1889; McMaster to Assistant Secretary of State William Wharton, 3 Mar. 1890, Consular Despatches-Cartagena, vol. xi.

38. *Diario Oficial*, 28 May, 11 Aug. 1889; 17 May, 7 Oct. 1891.

39. *ibid.*, 28 May 1889; 16 Feb., 24 Sept. 1865.

40. The contracts are to be found in *ibid.*, 15 Feb. 1890, and 25 Apr. 1895. For other information on the three companies see *ibid.*, 4 Nov. 1892, and "Extracts from Annual Report of the Cartagena-Magdalena Railroad Company", enclosed with the report of Consul Rafael Madrigal, Cartagena, 10 July 1898, in Department of Commerce and Labour, Bureau of Manufactures, *Monthly Consular and Trade Reports* (Washington, D.C., 1880-1910), LVIII, 281.

41. Eusebio Grau, *La Ciudad de Barranquilla en 1896* (Bogotá, 1896), p. 71. The president of the Compañía Fluvial later wrote of the combined companies, "The present enterprise was to develop a complete system of transportation via the Cartagena-Calamar route which appeared both to the promoters of the undertaking and to the then Government of Colombia the more desireable [than the Barranquilla-Sabanilla Bay route], on the one hand because of its greater commercial feasibility and the marked superiority of the harbour at Cartagena, and on the other because of the public desireability of maintaining and increasing the dignity and power of the ancient and politically important city of Cartagena, the capital of the state of Bolívar, a stronghold of Conservative politics, and at that time the actual residence of the venerable President Dr Núñez" (James C. Colgate to Secretary of State John Hay, 1901 [no day or month given], General Records of the Department of State, Record Group 59, Miscellaneous Letters, Annex A, 14 Aug. 1901, in National Archives, Washington, D.C. Hereinafter cited as Miscellaneous Letters).

42. An article in the *Diario Oficial* of 21 Apr. 1898, told that the Dique could no longer be navigated most of the year because masses of limbs and grass virtually filled the shallow water. The Compañía Fluvial, however, began operations in 1898, and claimed that by October of 1899 it had ten steamboats, a tug, and dugouts and other small boats in operation in the Dique and on the river (Colgate to Hay, Miscellaneous Letters).

43. The president of the Compañía Fluvial reported that the company's boats were confiscated, turned into a "Government Merchant Fleet", and some damaged beyond repair; meanwhile the government, feeling Cartagena and Calamar to be safely in the Conservative camp, "found it desireable to placate Barranquilla and Sabanilla where Liberal politics flourished" (*ibid.*).

44. The companies later collected claims against the government (*ibid.*; *Diario Oficial*, 16 Apr. 1905). Colombian trade statistics are virtually non-existent for this war period. One United States consular report states that trade through Cartagena was especially hurt (Acting Vice-Consul Hanaberg to Department of State, 21 Feb. 1900, Consular Despatches-Cartagena, vol. iii), besides which there is the reference to commercial discrimination cited in the previous footnote.

45. This general statement is based on statistics compiled from figures given in the *Diario Oficial* over several years' time.

46. Nueva Granada, Secretario del Interior y Relaciones Esteriores, *Censo general de población de la República de la Nueva Granada levantado con arreglo a las disposiciones de la lei de 2 de junio de 1834 en los meses de enero, febrero y marzo de 1835 y distribuido por provincias, cantones, distritos parroquiales, edades, y clases* (Bogotá, 1835), pp. unnumbered; *The Statesman's Yearbook*, 1905, p. 545; letter, Eduardo Santos Rubio, Director Nacional de Estadística, to the writer, Bogotá, 24 May 1949.

47. *Diario Oficial*, 25 Oct. 1915; 9 Feb., 15 Dec. 1916; 21 Aug., 22 Nov. 1919; 28 Jan., 2 Nov. 1920;

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9 Jan., 20 Aug. 1923; Consul E. G. Soule, Cartagena, 23 Aug. 1922, Decimal Files of the Department of State, in National Archives, Washington, D.C.

48. Alfredo Ortega Díaz, *Ferrocarriles colombianos, resumen histórico* (Bogotá, 1920-49), III, 322; Rafael Gómez Picón, *Magdalena, Río de Colombia. Interpretación geográfica, histórica, política, social y económica de la gran arteria colombiana desde su descubrimiento hasta nuestros días* (3rd ed., Bogotá, 1948), p. 465.

49. Ortega Díaz, *op. cit.*, III, 322-3; *Diario Oficial*, 8 Feb. 1926; 9 Feb. 1928; 31 Aug. 1929; 24 June 1930; 20 Aug. 1931.

50. Message to Congress of President Enrique Olaya Herrera, *Diario Oficial*, 22 July 1931.

51. These works were to be financed by loans of 1 million pesos from the Banco de la República, another million from the Andian Corporation of Ontario, and \$850,000 from Snare itself (*ibid.*, 28 Apr., 2 July 1932).

52. *The Washington Herald*, 15 Sept. 1935.

53. Colombia, *Anuario general de estadística* (in the library of the University of California, Berkeley, Bogotá, 1932-49), 1936, p. 247.

54. Vice-Consul S. Wilson Clark, Report on Economic Development in the Cartagena Consular District during the First Half of 1948, Cartagena, 11 Aug. 1948 (unpublished report in the American Consulate, Barranquilla).

55. Report quoted in Consul Walter W. Hoffman to the writer, American Consulate, Barranquilla, 11 Apr. 1950.

56. Consul Douglas Flood to the writer, American Consulate, Barranquilla, 5 June 1953. Mr Flood commented that "the increase in volume in 1951 was not due to the improvement of the canal but because of diversion of shipping to Cartagena for several months due to congestion in the port of Barranquilla."

57. *ibid.* 58. *ibid.*

59. *El Espectador* (Bogotá), 26 May 1949; Hoffman to the writer, *op. cit.* A map entitled Railroads of Colombia, which appeared in the *New York Times* on 6 Jan. 1954, did not even show this line.

60. International Bank for Reconstruction and Development, *The Basis of a Development Program for Colombia; Report of a Mission headed by Lauchlin Currie and Sponsored by the International Bank for Reconstruction and Development in Collaboration with the Government of Colombia* (Baltimore, 1950), p. 134.